

that converts from low-swing voltage levels used by the Rambus Channel to ordinary CMOS logic levels. See Rambus Disclosure at page 7, column 2. In addition, the Rambus memory controller supports all control functions including protocol, refresh, memory and interleaving support (page 14, col. 2). Nevertheless, the Rambus Disclosure does not disclose or suggest a memory controller comprising a refresh timing circuit for generating clock pulses used to trigger memory refreshes.

Claim 1 recites a memory controller including a refresh timing circuit for generating clock pulses used to trigger memory refreshes. As described above, the Rambus Disclosure does not disclose or suggest such a limitation. The Rambus Disclosure simply describes a memory controller that supports refreshes. However, the disclosure of a memory controller with refresh control is not analogous, nor implicit, of a memory controller having a refresh timing circuit for generating clock pulses used to trigger memory refreshes. Consequently, claim 1 is patentable over the Rambus Disclosure.

Claims 2-15 depend from claim 1 and include additional limitations. Therefore, claims 2-15 are also patentable in view of the Rambus Disclosure.

Claim 16 recites a memory controller comprising a refresh timing circuit for generating clock pulses used to trigger memory refreshes. Thus, for the reasons stated above with respect to claim 1, claim 16 is also patentable over the Rambus Disclosure. Because claims 17-28 depend from claim 16 and include additional limitations, claims 17-28 are also patentable in view of the Rambus Disclosure.

Claim 38 recites a refresh timing circuit comprising an internal clock generator. Thus, for the reasons stated above with respect to claim 1, claim 38 is also patentable over the Rambus Disclosure. Since claims 39-49 depend from claim 28 and include additional limitations, claims 39-49 are also patentable in view of the Rambus Disclosure.

Applicants respectfully submit that the rejections have been overcome, and that the claims as amended are in condition for allowance. Accordingly, applicants respectfully request the rejections be withdrawn and the claims be allowed.

The Examiner is requested to call the undersigned at (303) 740-1980 if there remains any issue with allowance of the case.


Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

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